

Donald Abelson
Chief of the International Bureau
Federal Communications Commission
445 12th Street SW
Washington, D.C. 20554

Dear Mr. Abelson:

The National Telecommunications and Information Administration on behalf of the Executive Branch Agencies, has approved the release of several Preliminary Executive Branch [NTIA] Views considering federal agency inputs toward the development of U.S. preliminary views for WRC-2003. Some of our initial view documents only contain background information at this time. We will continue to develop our inputs for the "U.S View" section on all these Views and provide them at a later time. The enclosure containing our views is forwarded for review by your WRC-2003 Advisory Committee. Karl Nebbia from my staff will contact Julie Garcia and reconcile any differences.

Sincerely,

(Original Signed By Fred Wentland March 6, 2001)
William T. Hatch
Associate Administrator
Office of Spectrum Management

Enclosure

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.1: requests from administrations to delete their country footnotes or to have their country footnotes deleted from footnotes, if no longer required, in accordance with Resolution 26 (Rev. WRC-97);

ISSUE: Deletion of Footnotes to the Table of Frequency Allocations in Article S5 of the Radio Regulations

BACKGROUND: Resolution 26 (Rev.WRC-97) urges administrations to review footnotes periodically and to propose the deletion of their country footnotes or of their country names from footnotes, as appropriate.

U.S. VIEW: In dealing with this agenda item, the U.S. supports the application of the approach used at WRC-2000. (February 6, 2001)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.2: to review and take action, as required, on No. **S5.134** and related Resolutions **517 (Rev.WRC-97)** and **537 (WRC-97)** and Recommendations **515 (REV.WRC-97)**, **517 (Rev. WRC-2000)**, **519 (WARC-92)** and Appendix **S11**, in the light of the studies and actions set out therein, having particular regard to the advancement of new modulation techniques, including digital techniques, capable of providing an optimum balance between sound quality, bandwidth and circuit reliability in the use of the HF bands allocated to the broadcasting service;

ISSUE: Preparing the regulatory way for the introduction of digital modulation use in the HF broadcasting bands.

BACKGROUND: Starting around 1995, active design and experimentation is being done on the use of digital modulation techniques for use in all the broadcasting bands below 30 MHz. Because of the special international broadcasting role at HF, documentation of an essentially regulatory nature began to be introduced within the ITU-R, initially through Study Group 10 (now Study Group 6).

WRC-97, in response to the development up to that time of digital modulation for HF broadcasting, modified some of the articles, resolutions and recommendations pertinent to HF broadcasting. There was no agenda item at WRC-00 associated with HF broadcasting.

The future agenda item committee at WRC-00, however, approved this agenda item for WRC-03 as a comprehensive item to permit WRC-03 to modify all the relevant ITU-R material cited in the agenda item in order to pave the regulatory way for the introduction of digital radio in the HF bands. This is being done at this time so as not to delay the introduction of improved radio in these bands beyond the time when industry will be able to have consumer radios on the market.

The collection of articles, resolutions and recommendations cited in the agenda item relate to:

- Access to WARC-92 extension bands for HFBC
- New system parameters, transmitter and receiver surveys, manufacturing implementation
- Protection ratios
- Cessation of double sideband analog modulation

(February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.3: to consider identification of globally/regionally harmonized bands, to the extent practicable, for the implementation of future advanced solutions to meet the needs of public protection agencies, including those dealing with emergency situations and disaster relief, and to make regulatory provisions, as necessary, taking into account Resolution 645 (WRC 2000);

ISSUE: The primary issues within this agenda item are: Do the issues raised in the **Resolution 645** require global harmonization of spectrum. If so, what are the spectrum requirements for public protection and disaster relief? If global harmonization would be beneficial, what are the appropriate mechanisms for facilitating it?

BACKGROUND: WRC-2000 established Agenda Item 1.3 to consider identification of globally/regionally harmonized bands, to the extent practicable, for implementation of future advanced solutions to meet the needs of public protection agencies, including those dealing with emergency situations and disaster relief, and to make regulatory provisions, as necessary. WP8A was designated as having responsibility to undertake appropriate studies related to public protection and disaster relief and report the results of these studies to WRC-03. In order to help facilitate the study of Agenda Item 1.3, WP8A circulated a questionnaire to gather requirements for public protection and disaster relief communications, develop a methodology for estimating spectrum requirements and identify appropriate frequency bands. In addressing whether or not spectrum should be identified for public protection or disaster relief services, consideration should be given as to whether those services should be given the benefit of extraordinary protection at the expense of other services, as is provided for "public safety" services. This could vary on a band-by-band or case-by-case basis.

Resolution 645 does not ask for a specific Recommendation, Resolution, or a Report, however; Resolution 645 does request the development of a draft resolution identifying the technical and operational basis for cross-border circulation. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.4: to consider the results of studies related to Resolution **114 (WRC-95)** dealing the use of the band 5 091-5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to Non-GSO MSS feeder links) and review the allocations to aeronautical radionavigation service and the fixed-satellite service in the band 5 091-5 150 MHz;

Resolution **114 (WRC-95)** Use of the band 5 091-5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to feeder links of the Non-Geostationary Mobile-Satellite Service)

ISSUE: WRC-2003 will review the results of studies on the technical and operational issues related to sharing of the band 5 091-5 150 MHz between the aeronautical radionavigation service and the fixed-satellite service providing feeder links of the non-geostationary mobile-satellite service (Earth-to-space). Are there requirements for MLS to use spectrum above 5 091 MHz, if yes, in what time frame? To what extent have MSS feeder links used spectrum to-date in the range 5 091-5 150 MHz? Would the MSS feeder links coexist with ARNS on a secondary basis or is there transition of feeder link use expected to frequencies above 5 150 MHz? Are revisions required to the current regulatory provisions (footnotes **S5.444** and **S5.444A** and Resolution **114 (WRC-95)** and if so, what revisions?

BACKGROUND: Resolution **114 (WRC-95)** requested ITU-R to study issues concerning sharing between Aeronautical Radionavigation Service (ARNS) and feeder links to Mobile Satellite Service (MSS) (Earth-to-space) in the band 5 091-5 150 MHz and to report results of the studies to WRC-2003. The use of this band by Microwave Landing Systems (MLS) and MSS feeder links is subject to footnotes **S5.444** and **S5.444A**, in particular the following conditions apply:

- 1) prior to 1 January 2010, the use of the band 5 091-5 150 MHz by feeder links of non-geostationary-satellite systems in the mobile-satellite service shall be made in accordance with **Resolution 114 (WRC-95)**;
- 2) prior to 1 January 2010, the requirements of existing and planned international standard systems for the ARNS which cannot be met in the 5 000-5 091 MHz band, shall take precedence over other uses of this band;
- 3) after 1 January 2008, no new assignments shall be made to stations providing feeder links of non-geostationary mobile-satellite systems;
- 4) after 1 January 2010, the fixed-satellite service will become secondary to the ARNS.

Sharing studies between NGSO/MSS feeder links and microwave landing systems resulted in ITU-R Recommendation S.1342 "Method for determining coordination distances, in the 5 GHz band, between the international standard microwave landing system in the aeronautical radionavigation service and non-geostationary mobile satellite service stations providing feeder uplink services." These studies showed that compatibility between MLS receivers and MSS feeder links (Earth-to-space) could exist if sufficient geographical separation exists between the two stations. As a result, Recommendation S.1342 was adopted to trigger coordination between the two operators to determine the acceptability of an MSS site, possibly with or without restrictions. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.5: To consider, in accordance with Resolution 736 (WRC-2000), regulatory provisions and spectrum requirements for new and additional allocations to the mobile, fixed, Earth exploration-satellite and space research services, and to review the status of the radiolocation service in the frequency range 5 150-5 725 MHz with a view to upgrading it, taking into account the results of ITU-R studies;

ISSUE: The technical feasibility of accommodating all of the requests for new and additional allocations for the mobile, fixed (Region 3), Earth exploration-satellite (EESS) and space research (SRS) services and also the upgrade of the radiolocation allocation in a limited amount of spectrum.

BACKGROUND: At WRC-2000 there were several proposals for items to be placed on the WRC-03 Agenda dealing with spectrum in the 5 GHz range. These items included new and additional allocations to the mobile (for Radio Local Area Networks (RLAN)), fixed (for Fixed Wireless Access (FWA) in Region 3), Earth exploration-satellite and (active) and space research (active) services. Also, an upgrade of the radiolocation allocation in 5 350-5 650 MHz was proposed. These were combined into one agenda item, since the possible allocation to any one of these services would affect the potential allocation of one or more of the other services within this frequency range.

Technology has evolved to the point where wireless networks can be readily and inexpensively deployed to support the businessman or student that is in a campus environment. These devices are becoming widely used in some parts of the world, particularly in North America and Europe. The U.S. domestic allocation table already allows for the use of Radio LAN and FWA devices on a non-interference basis in the 5 150-5 350 and 5 725-5 825 MHz bands. These devices have power level and antenna gain restrictions on them to protect the existing services. Europe has also implemented these devices in similar spectrum, also with significant usage restrictions. Preliminary studies indicate that without these restrictions, sharing between the existing services and RLANS is not feasible. It is also expected that similar restrictions on FWA systems will be necessary to protect the EEES and SRS. For, example, studies show that presence of outdoor wireless access system transmitters can cause significant interference to spaceborne active sensors that operate in the EEES and SRS. In addition, the ITU-R has concluded that restrictions are also necessary to protect the MSS feederlinks in the 5 150-5 250 MHz band. Lastly, preliminary ITU-R studies of radiolocation sharing with FWA have shown that large separation distances or other mitigation techniques such as receiver standards or error-correction coding are required to prevent mutual interference.

Active microwave sensors on board spacecraft are an increasingly important tool for monitoring the Earth's environment and oceans through the determination of wave height and oceanic currents as well as for radar imaging of the Earth's surface. The need for an additional 110 MHz of spectrum adjacent to the current international allocation from 5 250 – 5 460 MHz is well documented within the ITU-R. The member space agencies of the Space Frequency Coordination Group (SFCG) have reviewed requirements for the various active sensor measurements, including TOPEX/POSEIDON and JASON. They have recognized the requirement for an extension of the existing allocated primary band (5 250 -

5 460 MHz) for enhanced vertical resolution for spaceborne altimeters and enhanced horizontal resolution for synthetic aperture radars (SARs). Previous studies and past operational experience has shown that operation in bands allocated to the radiolocation, radionavigation and aeronautical radionavigation services has proven to be feasible. Although further study is needed to confirm that this true in the 5 460 – 5 570 MHz band, ITU-R preliminary studies indicate that this is the case.

WRC-97 first considered the possibility of an allocation upgrade for the radiolocation service in the 2.9-3.4 GHz and 5.35-5.65 GHz bands by placing this matter on the draft WRC-2001 Agenda. A need of 600 MHz of additional primary radiolocation spectrum for radiolocation systems has been determined. Changes in technology are driving the need for larger bandwidth in order to be able to pick smaller and less reflective radar targets out of background clutter. Experience has shown that the radiolocation service can successfully share the band 5 350-5 650 MHz with radionavigation and EESS/SRS active systems. In fact studies of sharing between radiolocation and active space borne sensors carried out for CPM-97 by JWP-7-8R generally support such sharing.

U.S. VIEW: Based upon the long history of successful co-band operations and the JWP 7-8R studies, it should be possible to achieve the upgrade for radiolocation with the incumbent services. By the same reasoning, the EESS extension in the 5 460-5 570 MHz band is also feasible. It is possible for radiolocation, EESS/SRS and MSS feederlinks to share with communications systems such as RLANs in the mobile service or FWA in the fixed service, but that restrictions will need to be placed upon the RLAN and FWA systems to protect the other services. (February 6, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.6: to consider regulatory measures to protect feeder links (Earth-to-space) for the mobile-satellite service which operate in the band 5 150-5 250 MHz, taking into account the latest ITU-R Recommendations (for example, Recommendations ITU-R S.1426, ITU-R S.1427 and ITU-R M.1454);

ISSUE: MSS Feeder Links at 5 150–5 250 MHz

BACKGROUND: The proliferation of radio local area networks (RLANs) poses a serious threat to mobile-satellite service feeder links in the 5 150–5 250 MHz frequency band. The RLANs require neither licensing nor coordination, so identification of sources is difficult or impossible when interference occurs. Moreover, enforcement of aggregate interference power limits is very problematic. The Recommendations listed in the Agenda Item, however, provide guidance for addressing the problems. Recommendation ITU-R S.1426 provides recommended levels of aggregate power flux-density for RLANs visible to an NGSO spacecraft with full Earth coverage, though the case of spot beam antennas requires further study. Recommendation ITU-R S.1427 states that the rise in satellite noise temperature DT/T should not exceed 3%. Furthermore, RLANs transmitters should be operated indoors, according to Recommendation ITU-R M.1454, which also provides information for sharing studies. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.7: To consider issues concerning the amateur and amateur satellite services;

ISSUE: Issues concerning Amateur Radio - 1.7.1 possible revision of Article S25

BACKGROUND: This item was prompted by a proposal at WRC-95 to delete the requirement for amateurs to demonstrate Morse code capability to be licensed to operate on amateur bands below 30 MHz. At that WRC, the International Amateur Radio Union (IARU) requested a delay because it needed to consult its three regional organizations, which meet in turn over a three-year period. This consultation has taken place and IARU provided an input document to Working Party 8A at its 1999 meeting and made a further input at WP 8A's 2000 meeting. The inputs resulted in a Draft New Recommendation adopted at SG 8. The DNR establishes minimum qualifications for amateur operators and provides for knowledge of various methods of radiocommunication including radiotelegraphy but does not specify Morse code. The draft CPM text generated by WP 8A in November 2000 says that the Morse code provision could be suppressed by WRC-2003 and the DNR could be considered for possible incorporation by reference.

Other provisions of Article S25 that are to be addressed under this agenda item are provisions concerning third party traffic and reciprocal operating agreements. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.7: To consider issues concerning the amateur and amateur satellite services;

ISSUE: Issues concerning Amateur Radio - **1.7.2** review of the provisions of Article S19

BACKGROUND: This item is concerning the formation of call signs in the amateur services in order to provide flexibility for administrations. This item arose at WRC-2000 as the result of a proposal to provide more flexibility in amateur station call sign structure, especially to commemorate special events. Some administrations already allow special event call signs for temporary use. Many administrations interpret the use of **S19** differently, which is the temporary use of call signs. However, some administrations want to have the Radio Regulations to be explicit in the use of temporary call signs. WP8A has developed a flexible structure by replacing “three letters” by “four characters” the last of which would be a letter. This change would considerably expand the number of possible call sign combinations and provided Administrations with increased flexibility without creating conflict with the call sign formats specified for stations in other services. (February 7, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.8.1: consideration of the results of studies regarding the boundary between spurious and out-of-band emissions, with a view to including the boundary in Appendix S3;

ISSUE: Boundary Between the Out-of-Band and Spurious Domains

BACKGROUND: While the intent of the unwanted emission limits in Appendix S3 is that they would apply to spurious emissions, it is not generally feasible to distinguish between out-of-band and spurious emissions as defined by Article S1. Therefore, the limits are applied to all unwanted emissions further removed from the center frequency than a specified *boundary*. This boundary is generally 250% of the necessary bandwidth.

Task Group 1/5 recognized that, since spurious emissions can occur anywhere outside the necessary bandwidth of an emission, no boundary actually exists between out-of-band and spurious emissions. TG 1/5 solved this problem by defining the out-of-band and spurious *domains*, disjoint frequency ranges specified such that out-of-band or spurious emissions generally predominate within them. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.9: to consider Appendix **S13** and Resolution **331 (Rev.WRC-97)** with a view to their deletion and, if appropriate, to consider related changes to Chapter SVII and other provisions of the Radio Regulations, as necessary, taking into account the continued transition to and introduction of the Global Maritime Distress and Safety System (GMDSS);

ISSUE: Review of Appendix **S13** (Distress and Safety Communications (non-GMDSS)) with the view of deleting duplicate or unneeded provisions.

BACKGROUND: In accordance with the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended, all ships subject to this convention were fitted for the Global Maritime Distress and Safety System (GMDSS) by 1 February 1999. GMDSS changed maritime distress and safety communications from essentially a ship-to-ship to primarily a ship-to-shore system. This change was based on the theory that a properly established shore facility could better organize a search and rescue effort. It further changed a highly manpower intensive system to one with considerable automation. During the transition period to full implementation of the GMDSS, the RR had dual provisions; **S13** includes the non-GMDSS provisions. Since the GMDSS provisions are applicable only to SOLAS vessels, there are a considerable number of maritime vessels that are not fitted with the automated communications systems, necessitating some continued operation on frequencies and modes used prior to the implementation of GMDSS. Support of the old and new distress and safety systems for an extended period of time is cost prohibitive. Many administrations have worked to increase fitting of GMDSS elements (e.g., radios incorporating DSC functions and satellite EPIRBs) on non-SOLAS vessels through rule-makings for specific classes of vessels and equipment certification requirements. This agenda item would review the requirements included in **S13** with the expectation of time-phased deletion of some of the non-GMDSS requirements. (February 7, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.10.1: to consider the results of studies, and take necessary actions, relating to exhaustion of the maritime mobile service identity numbering resource (Resolution **344 (WRC-97)**);

ISSUE: Presently Maritime mobile service identities (MMSIs) are required for many shipboard communications equipment (e.g., DSC, mobile earth stations). As the number of vessels carrying these systems increase, the availability of MMSIs have decreased. This is due to the near exhaustion of available Maritime Identification Digits (MIDs). The ITU, following established procedures, refuses to provide additional MIDs until administrations populate the ITU databases and List of Ship Stations.

BACKGROUND: The MMSI (Article **S19**) is a 9-digit number to uniquely identify ship stations, group ship stations, coast stations and group coast stations. Three of the nine digits are the Maritime Identification Digits (MIDs). MIDs represent territory or geographical area of administrations and are assigned by the ITU. The total possible number of MMSIs is reduced by a requirement to assign MMSIs ending in 3-zeros to vessels requiring access to certain satellite services. Additional MIDs are assigned by the ITU based on an administration exhausting available MMSIs based on the total number of ship stations entered into the ITU maritime database shown on the ITU List of Ship Stations. This problem is exacerbated for administrations that do not normally register non-convention vessels or military vessels in the ITU List of Ship Stations or other ITU databases. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.10.2: to consider the results of studies, and take necessary actions, relating to shore-to-ship communication priorities (Resolution 348 (WRC-97));

ISSUE: A shore-based search and rescue authority has no means to interrupt or preempt the satellite communications to a vessel in a distress or safety situation. This communications inability may increase the probability of lost of life and property.

BACKGROUND: At present, when vessels are using their ship earth stations, it is not possible to send them a distress or safety message without extremely complex and time-consuming manual intervention at a land earth station to remove all other shipboard traffic. Although this is technically possible, it is not practical. In a recent distress case, the shore-based search and rescue authorities were unable to contact a vessel because of on-going routine traffic to the vessel. This inability to preempt lower priority traffic hindered the overall search and rescue operation. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.12a: to consider allocations and regulatory issues related to the space science services in accordance with Resolution **723 (Rev.WRC-2000)** and to review all Earth exploration-satellite service and space research service allocations between 35 and 38 GHz, taking into account Resolution **730 [COM5/1] (WRC-2000)**;

ISSUE: Resolution **723 (Rev.WRC-2000)** resolves to recommend that WRC-03 consider the provision of up to 3 MHz of frequency spectrum for the implementation of telecommand links in the space research and space operations services in the frequency range 100 MHz to 1 GHz.

BACKGROUND: ITU-R Recommendation **SA.363-5** recommends that frequencies below 1 GHz are technically suitable for telecommand of satellites in the space science services operating below an altitude of 2000 km. A deficiency in telecommand (uplink) frequency allocations has been previously identified, compared to the available telemetry (downlink) allocations in the 100 MHz to 1 GHz range. This deficiency was first noted in Resolution **712 (WARC-92)**, repeated in Resolution **712 (Rev. WRC-95)**, and again in Resolution **723 (WRC-97)**.

This item was originally placed on the WRC-97 agenda due to the imbalance that exists between telemetry spectrum and telecommand spectrum in the 100 MHz to 1 GHz region. WRC-97 determined that insufficient study had been completed to take action on this agenda item. Sharing studies are currently being carried out within ITU-R WP 7B to determine whether or not these telecommand links will interfere with fixed and mobile (to include airborne mobile) systems of other administrations. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.12b: to consider allocations and regulatory issues related to the space science services in accordance with Resolution 723 (Rev. WRC-2000) and to review all Earth exploration-satellite service and space research service allocations between 35 and 38 GHz, taking into account Resolution 730/[COM5/1] (WRC-2000);

ISSUE: To consider incorporating in the Table of Frequency Allocations the existing primary allocation to the space research service in the band 7 145 - 7 235 MHz under No. S5.460. (Resolution 723 (Rev.WRC-2000), *resolves 2*)

BACKGROUND: The 7 145 - 7 235 MHz band is allocated by footnote S5.460 on a primary basis to the space research service (Earth-to-space), subject to agreement under No. S9.21. The companion downlink band, 8 400-8 500 MHz, is allocated on a primary basis in the Table of Frequency Allocations. These bands are used on a worldwide basis for cross-support in accordance with international agreements concluded between a number of space agencies. The footnote calling for agreement under No. S9.21 was originally applied at WARC-79 because the coordination parameters necessary for earth station coordination were not agreed at that time. Currently, Appendix S7 contains these coordination parameters for transmitting earth stations for the space research service in the 7 145 - 7 235 MHz band. Therefore, the premise behind requiring agreement under No. S9.21 no longer exists.

Worldwide decisions in the framework of ITU on IMT-2000 core bands (which include the band 2 110-2 120 MHz allocated to Space Research Service, Deep Space) are 'de-facto' constraining both the existing space research service and the planned IMT-2000 systems (see RR S5.388). With the planned implementation of IMT-2000 starting in 2001, the band 2 110-2 120 MHz will be increasingly difficult to use by the powerful Earth-to-space links of the space research/deep space service. The space research service will be forced to migrate all but emergency operations to an alternative band, i.e., to the existing allocation within 7 145 - 7 235 MHz.

U.S. VIEW: The U.S. supports the addition of the space research service (Earth-to-space) to the Table of Frequency Allocations on a primary basis in the 7 145 - 7 235 MHz band and the modification of footnote S5.460 to delete everything except the final sentence of the current footnote. (February 6, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.12c: to consider allocations and regulatory issues related to the space science services in accordance with Resolution **723 (Rev. WRC-2000)** and to review all Earth exploration-satellite service and space research service allocations between 35 and 38 GHz, taking into account Resolution **730/[COM5/1] (WRC-2000)**;

ISSUE: To review existing allocations to space science services near 15 GHz and 26 GHz, with a view to accommodating wideband space-to-Earth space research applications. (Resolution **723 (Rev. WRC-2000)**, *resolves 4*)

BACKGROUND: Currently, only the 8 450-8 500 MHz band is available below 30 GHz for the down-link of broadband data from spacecraft in the space research service (SRS). The next available band allocated for SRS use is 37-38 GHz. This band is expected to be heavily utilized for lunar and planetary missions and additionally may be constrained by deployment of HDFS. An allocation is needed to support planned high data rate space research missions (requiring bandwidths up to 400 MHz) that will carry telescopes and/or other passive instruments used to measure phenomenon such as the earth's magnetosphere and solar flares. These missions will be limited in number with no more than an estimated 3-5 satellites per year worldwide, and will generally be in equatorial orbits with some geostationary and others at the L1 or L2 libration points.

The 25.5-27.0 GHz band is currently allocated on a worldwide primary basis to the Earth exploration-satellite service (EESS) (space-to-Earth). The telecommunications requirements for the SRS (near Earth missions) are in general similar to those in the EEES and systems of these services are expected to share ground network resources. There are no plans for, nor is there any foreseeable need, for broad distribution of such data. The sharing situation for the SRS with other services allocated in these bands are expected to be very similar to those involved between the EEES and these other services and therefore do not present additional burden to the other allocated services.

Additionally, there is a secondary space research allocation covering 14.5–15.35 GHz. The possibility of upgrading all or part of this allocation to primary status is under investigation.

U.S. VIEW: The U.S. supports the need for additional space research service downlink spectrum below 30 GHz to facilitate broadband SRS mission requirements. Either the 14.5 -15.35 GHz or 25.5-27 GHz bands under study would fulfill the SRS requirements. The U.S. anticipates submitting a proposal to WRC-2003 for a primary SRS allocation within the bands under investigation. (February 6, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.12d: to consider allocations and regulatory issues related to the space science services in accordance with Resolution **723 (Rev. WRC-2000)** and to review all Earth exploration-satellite service and space research service allocations between 35 and 38 GHz, taking into account Resolution **730/[COM5/1] (WRC-2000)**;

ISSUE: to review the allocations to the space research service (deep space) (space-to-Earth) and the inter-satellite service, taking into account the coexistence of these two services in the frequency range 32-32.3 GHz, with a view to facilitating satisfactory operation of these services. (Resolution **723 (Rev. WRC-2000)**, *resolves 3*)

BACKGROUND: Signals received on Earth from spacecraft in deep space are extremely weak and highly susceptible to interference of all kinds. In particular, the presence of near-Earth airborne and spaceborne interference sources can easily overwhelm the desired (but extremely weak) signal from deep space. Geographic isolation is not possible in the case of near-Earth orbiting spacecraft sharing the same band with space research (deep space). To satisfy present and future science deep space data return requirements, heavy reliance is being placed on space-to-Earth links in the 31.8-32.3 GHz band. The lack of compatibility between the inter-satellite service and the space research service (deep space) has been demonstrated and is documented in Recommendation ITU-R SA. 1016.

U.S. VIEW: Sharing between the space research service (deep space) (space-to-Earth) and the inter-satellite service does not appear feasible. The U.S. anticipates proposing that the inter-satellite service allocation from 32-33 GHz be modified to exclude the 32-32.3 GHz band. The U.S. is in the process of removing the inter-satellite service from this band in its National Table of Frequency Allocations. (February 6, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.12e: to consider allocations and regulatory issues related to the space science services in accordance with Resolution **723 (Rev.WRC-2000)** and to review all Earth exploration-satellite service and space research service allocations between 35 and 38 GHz, taking into account Resolution **730 (WRC-2000)**;

ISSUE: Resolution **730 (WRC-2000)**, resolves 1 and 2, and review of all Earth exploration-satellite service and space research service allocations between 35 and 38 GHz.

1 to invite ITU-R to study sharing between spaceborne precipitation radars and other services in the band 35.5-35.6 GHz;

2 to recommend that WRC-03 review the results of those studies and consider the removal of the restriction currently contained in No. S5.551A on spaceborne precipitation radars operating in the Earth exploration-satellite service in the band 35.5-35.6 GHz.

Footnote S5.551A, which places restrictions on the use of the EESS and SRS (active) allocations in the 35.5-36 GHz band, is to be reexamined to determine if there is technical justification for its removal.

BACKGROUND: The frequency band 35.5 – 36 GHz is allocated to the Earth exploration-satellite (active) service on a primary basis limited by footnote **S5.551A** and is also allocated to the meteorological aids and radiolocation services on a primary basis. Prior to WRC-97, operation by radars located on spacecraft on a primary basis was permitted in the band 35.5–35.6 GHz by footnote **S5.551 (SUP WRC-97)**. This 100 MHz band is used by precipitation radars located on spacecraft. Furthermore, studies have shown that sharing between spaceborne active sensors and radiolocation systems in the band 35.5–36 GHz is feasible, as indicated in § 5.7.2.1 of Chapter 5 of the CPM-97 Report. ITU-R Joint Working Party 7-8R, which studied compatibility between spaceborne active sensors and other services prior to WRC-97, noted that in the band 33.4–36 GHz, compatibility analysis between spaceborne altimeters and scatterometers and terrestrial radars in the radiolocation service indicated that interference from these spaceborne active sensors into the radiolocation systems would not exceed the interference criteria for terrestrial radiolocation systems that are in normal use. JWP 7-8R also examined the compatibility of active sensors with radiolocation systems from the aspect of potential interference from these radiolocation systems into altimeters and scatterometers and concluded that interference into these sensors would not exceed their interference criteria. Therefore, JWP 7-8R and subsequently CPM-97 concluded that compatibility between known spaceborne active sensors and radiolocation systems in the 33.4–36 GHz band existed and that an allocation of 500 MHz in this frequency range should be made. Therefore, there was no technical reason behind applying the footnote **S5.551A** to the table allocation for the Earth exploration-satellite (active) and space research (active) services in the 35.5-36 GHz band.

With respect to the EESS (passive) and SRS (passive) allocations in the band 36-37 GHz and the space research service allocation in the band 37–38 GHz, there have been no changes in the requirements for these allocations, nor have there been changes in the sharing conditions in these bands that would warrant any changes.

U.S. VIEW: The U.S. believes that the footnote **S5.551A** should not have been applied to the band 35.5–35.6 GHz due to the nature of the primary allocation by footnote **S5.551 (SUP WRC-97)**. Therefore, the U.S. supports the removal of the restriction currently contained in footnote **S5.551A** on spaceborne precipitation radars operating in the Earth exploration-satellite service in the band 35.5–35.6 GHz. Furthermore, there is no technical basis for the application of footnote **S5.551A** to the remainder of the allocation from 35.6–36 GHz. Therefore, the U.S. supports the suppression of footnote **S5.551A**.

Further, the U.S. supports maintaining the allocations to the Earth exploration-satellite (passive) and space research (passive) services in the band 36–37 GHz and to the space research service in the band 37–38 GHz without change. (February 6, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.13: consider regulatory provisions and possible identification of existing frequency allocations for services which may be used by high altitude platform stations, taking into account No. **S5.543A/S5.5RRR** and the results of the ITU-R studies conducted in accordance with Resolutions **122 (Rev.WRC-2000)** and **734/[COM5/14] (WRC-2000)**;

ISSUE: Matters related to high-altitude platform stations in the fixed and mobile services

BACKGROUND: At WRC-97, the bands 47.2-47.5 GHz and 47.9-48.2 GHz (which were already allocated for the Fixed Service) were designated for High-Altitude Radio-Relay Platform Stations (HAPS). WRC-2000 confirmed this designation and requested that studies continue on regulatory and sharing issues in these bands. While this designation does not limit the use of a band by types of services for which it is already allocated, it does give guidance to administrations wishing to implement specific service types. Within the U.S., the band 47.2-48.2 GHz is also being evaluated for Fixed Service use (including HAPS), using sets of two 100 MHz paired channels with each pair being separated by 500 MHz.

WRC-2000 also requested studies of the bands between 18 and 32 GHz on the feasibility of allocating additional spectrum in Region 3, at the request of several administrations because rain fade made utilizing the previously-identified 47 GHz band difficult. In addition, the band 27.5-28.35 GHz to HAPS (HAPS-Earth) was allocated by country footnote on a non-interference basis. This band was paired with the 31-31.3 GHz band for Earth to HAPS use, additionally subject to not causing harmful interference to EESS (passive) and RAS services operating in the 31.3-31.8 GHz band. The footnote urged the identified administrations to utilize only the 31.0-31.15 GHz band until studies were completed.

The EESS (passive) and RAS service communities are very concerned about the possibility of interference from HAPS stations in this spectrum. The 31–31.3 GHz band is adjacent to the band 31.3–31.5 GHz passive band allocated on a primary basis to the Earth exploration-satellite (passive) and space research (passive) services for passive remote sensing of the Earth. This passive sensing band is of vital importance in Earth observation and weather forecasting because it is the reference band used in conjunction with the unique oxygen absorption bands from 50.2–59.3 GHz. Unwanted interference in this band from out-of-band emissions from HAPS would be particularly harmful to the remote sensing use of the band.

In addition to the above, WRC-2000 requested studies on the use of HAPS in both the fixed and mobile services in bands above 3 GHz allocated exclusively for terrestrial radiocommunication.

U.S. VIEW: Worldwide use of the 31.3–31.5 GHz passive band for remote sensing of the Earth must be protected. (February 6, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.14: to consider measures to address harmful interference in the bands allocated to the maritime mobile and aeronautical mobile (R) services, taking into account Resolutions **207 (Rev.WRC-2000)** and **350/[COM5/12](WRC-2000)**, and to review the frequency and channel arrangements in the maritime MF and HF bands concerning the use of new digital technology, also taking into account Resolution **347 (WRC-97)**;

ISSUE: There has been considerable interference to HF frequencies used by the aeronautical and maritime mobile services for distress and safety communications. Routine calling is prohibited on channels allocated for digital selective calling (DSC) under the GMDSS. Additionally, proposals were made to prohibit routine calling on several HF frequencies that are not part of the GMDSS and are presently allocated for distress, safety and calling. Removal of the calling function may present potential communications difficulties among and between GMDSS and non-GMDSS fitted vessels.

BACKGROUND: In an ongoing effort to reduce interference to HF distress and safety frequencies used in the GMDSS, previous conferences determined that general calling should not be made on channels allocated for distress. Although this may reduce the amount of traffic on these channels, it reduces or eliminates the ability of vessels to call or communicate with other vessels for routine purposes. This could occur since GMDSS fitted vessels are not required to monitor channels outside the GMDSS requirements (e.g., HF-DSC).

It has additionally been proposed that frequencies 12 290 kHz (channel 1221) and 16 420 kHz (channel 1621) be re-allocated to distress and safety only (i.e., remove the calling function). Removal of the calling function would require vessels to increase their monitoring capabilities (e.g., monitor distress channels and calling channels). (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.17: to consider upgrading the allocation to the radiolocation service in the frequency range 2 900-3 100 MHz to primary;

ISSUE: Obtaining sufficient primary spectrum for radiolocation in the range 2 900-3 400 MHz to support expanding radiolocation operations; sharing between radiolocation and incumbent services – radiolocation and radionavigation.

BACKGROUND: WRC-97 (Resolution 722) first considered the possibility of an allocation upgrade for the radiolocation service in the 2.9-3.4 GHz and 5.35-5.65 GHz bands by placing this matter on the draft WRC-2001 agenda. Changes in technology are driving a need for larger bandwidth in order to be able to pick smaller and less reflective radar targets out of background clutter. This upgrade is necessary in view of the expanding requirements of radiolocation. The radiolocation service, while recognizing the special needs of radionavigation services noted in RR S.4.10, has a long successful history of sharing the band 2 900-3 100 MHz with radionavigation systems. The radiolocation service needs this spectrum to provide primary spectrum contiguous with the band 3 100-3 400 MHz. ITU-R WP8B will conduct studies on technical and operational issues related to the upgrading of the radiolocation service allocation taking into account Nos. S5.425, S5.426 and S5.427.

U.S. VIEW: Based upon the long history of successful co-band operations it may be possible to achieve this upgrade for radiolocation with the incumbent services by regulatory text similar to that contained in RR S5.448B. However, the situation regarding radiolocation sharing with communications systems such as FWA in the fixed service, is not promising. Sharing studies are just now getting under way in the ITU-R. (February 8, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.19: to consider regulatory provisions to avoid misapplication of the non-GSO FSS single-entry limits in Article S22 based on the results of ITU-R studies carried out in accordance with Resolution 135 (WRC-2000);

ISSUE: The single-entry equivalent power flux-density (epfd) limits in Tables S22-1 (epfd_↓), S22-2 (epfd_↑), and S22-3 (epfd_{is}) of Article S22 are the sum of the power flux-densities produced at a GSO receive station by the emissions from all the transmit stations within a non-geostationary-satellite system. Misapplication of non-GSO FSS single-entry limits could occur by artificially splitting or combining the number of transmit stations associated with a non-GSO FSS system.

BACKGROUND: WRC-97 adopted, in Article S22, provisional epfd limits to be met by non-GSO FSS systems in order to protect GSO FSS and GSO BSS networks in parts of the frequency range 10.7-30 GHz. CPM-99 specifically identified possible misapplication of single-entry limits as one area that may require possible procedural/regulatory actions. As stated in the CPM Report to WRC-2000, it was agreed that that such misapplication would invalidate the entire basis of the derivation of the single-entry limits. No conclusions were reached by WRC-2000 on the issue of misapplication of the single-entry epfd limits. Resolution 135 (WRC-2000) was adopted for the purpose of developing criteria and processes for the resolution of possible cases of misapplication of non-GSO FSS single-entry limits in Article S22.

U.S. VIEW:

1. It is in the interest of all administrations to avoid any misapplication of the single-entry epfd limits. Misapplication could distort the regulatory or interference situation by violating the assumptions upon which the single-entry epfd limits were based and adversely impact the GSO FSS and BSS networks to be protected.
2. The number of non-GSO FSS systems that can share co-frequency in the 14/11 and 30/20 GHz bands will be limited. The more homogenous the non-GSO FSS system constellation parameters, the greater the number of systems that will be able to share co-frequency. Coordination under No. S9.12 effectively places the obligation for implementing mitigation techniques on the later systems to be filed with the BR. Misapplication could reduce the number of competing non-GSO FSS systems, make coordination between non-GSO systems more difficult, or lead to differing regulatory effects for non-GSO FSS systems which meet the limits and those which misapply the limits and should be avoided in order to protect compliant non-GSO systems.
3. The U.S. continues to participate in the technical studies on sharing between non-GSO FSS and GSO FSS and BSS networks and review the need to adopt regulatory procedures to avoid misapplication of the single-entry limits. There have been no apparent cases involving potential misapplication of the single-entry epfd limits to date. (February 6, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-2003

WRC-2003 Agenda Item 1.20: to consider additional allocations on a worldwide basis for the non-GSO (NGSO) MSS with service links operating below 1 GHz, in accordance with resolution 214 (Rev WRC-2000);

ISSUE: Additional allocations to the NGSO MSS below 1 GHz for earth-to-space and space-to-earth service links

BACKGROUND: WRC-2000 considered proposals for new allocations to the NGSO MSS below 1GHz. The allocation proposals were made to the Conference in response to Resolutions 214 and 219. Resolution 214 addressed a broad range of NGSO MSS below 1 GHz allocation issues while Resolution 219 specifically addressed the potential use of the band 405-406 MHz in the space-to-earth direction.

Resolution 219 was suppressed by the Conference with no allocation made to the NGSO MSS in the band 405-406. Resolution 214 was revised to take into account the information considered by the Conference. As currently written, the NGSO MSS may continue to pursue an allocation within the band 401-406 MHz under Resolution 214.

This item has been on the agenda for three conferences and has received little support. Many countries have previously expressed the position that sufficient spectrum has been allocated to the MSS below 1 GHz to satisfy market requirements. The band 401-406 MHz must be segmented in order to allow use by the MSS. While the impact of loss of spectrum in this band may be small in some countries, the entire band is required for meteorological operations in many other countries, including the whole of Europe. Spectrum below 1 GHz is heavily used and no other options for downlink spectrum have been identified.

Resolution 214 is the single mechanism under which the NGSO MSS below 1 GHz may conduct studies to identify additional spectrum. Resolution 214 resolves that further studies are required on sharing between the NGSO MSS and other services and invites WRC-2003 to consider the results of these studies. In addition, the Resolution invites the ITU-R to carry out the required studies on sharing, study interference mitigation techniques for sharing between the NGSO MSS and other services, and bring the results to WRC-2003 for consideration. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.21: to consider the progress of the ITU-R studies concerning the technical and regulatory requirements of terrestrial wireless interactive multimedia applications, in accordance with Resolution **737 (WRC-2000)** with a view to facilitating global harmonization;

ISSUE: What if any actions are needed by the ITU-R to facilitate the development of Terrestrial Wireless Interactive Multimedia.

BACKGROUND: At WRC-2000, a proposal from several European administrations indicated a desire to address spectrum for Terrestrial Wireless Interactive Multimedia technologies and applications. After much discussion, a very open agenda item was developed to consider a progress report on the studies related to this issue. Among the items to be studied are the regulatory means to facilitate the worldwide harmonization of spectrum for Terrestrial Wireless Interactive Multimedia, and to review service definitions in the light of convergence of applications, if necessary.

WRC-2000 also decided that any allocation changes or regulatory work on this issue would be discussed at WRC-06. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2000 Agenda Item 1.22: to consider progress of ITU-R studies concerning future development of IMT-2000 and systems beyond IMT-2000, in accordance with Resolution 228 (WRC-2000);

Resolution 228, “Studies to consider requirements for the future development of IMT-2000 and systems beyond IMT-2000 as defined by ITU-R”

ISSUE: To study spectrum requirements and potential frequency range suitable for the future development of IMT-2000 and systems beyond IMT-2000, and in what time frame such spectrum would be needed. No action is required by the Conference.

BACKGROUND: WRC-2000 considered issues related to IMT-2000, resulting in the identification of additional spectrum for the terrestrial component of IMT-2000 in the Radio Regulations S5.317A and S5.384A. This spectrum was identified in addition to that identified for initial IMT-2000 deployment at WARC-92 in footnote S5.388. WRC-2000 also identified existing global MSS allocations as being available for use by the satellite component of IMT-2000, in accordance with Resolution 225.

In Resolution 228 (WRC-2000), the ITU-R was invited to continue studies on overall objectives, applications and technical and operational implementation for the future development of IMT-2000 and system beyond. These requirements are to be reviewed by WRC-05/06, taking into consideration the results of ITU-R studies presented to WRC-03.

U.S. VIEW: No action is required at WRC-03 on this agenda item. (February 6, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.23: to consider realignment of the allocations to the amateur, amateur-satellite and broadcasting services around 7 MHz on a worldwide basis, taking into account Recommendation 718 (WARC-92);

ISSUE: To have the same spectrum allocation for the amateur/amateur-satellite services in all three ITU Regions.

BACKGROUND: As part of a long standing historical situation, the amateur/amateur satellite exclusive allocation in Region 2 goes from 7000 to 7300 kHz, while it goes only from 7000 to 7100 kHz in Regions 1 and 3. The other 200 kHz for Regions 1 and 3 are allocated exclusively to the broadcasting service. The amateur radio community has been trying to “realign” this “imbalance” for decades. WRC-00 for the first time specified that the agenda item be on the agenda for the next WRC, in this case WRC-03.

Although the term “realign” invokes a feeling of ease of accommodation, this agenda item is liable to be very controversial. It all depends on the way of looking at how much spectrum to “realign”. Through Working Party 8A, for example, the amateur/amateur-satellite representatives have documented two alternatives: (a) from 6900 to 7200 kHz for the amateur/amateur-satellite service and (b) from 7000 to 7300 kHz. It is unlikely that the broadcasting service community will wish to relinquish any spectrum, particularly since this spectral region is within the 4 to 10 MHz spectral region, where under WRC-03 agenda item 1.36 the broadcasters are in effect asking for more spectrum.

It is equally unlikely that the amateur/amateur-satellite service proponents will propose reducing the amateur/amateur-satellite allocation in Region 2 so that the “realignment” would take away spectrum just to have equal amounts for each Region.

Because of the potential impact of such realignment, the agenda item will most likely become an allocation item involving the other allocated services. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEWS FOR WRC-03

WRC-03 Agenda Item 1.24: to review the usage of the band 13.75-14 GHz, in accordance with Resolution 733 (WRC-2000), with a view to addressing sharing conditions;

ISSUE: To determine the sharing conditions affecting the radionavigation, radiolocation, space research and fixed-satellite service, several issues must be taken into consideration:

- 1) the review of constraints in footnote S5.502 regarding the minimum antenna diameter of GSO FSS Earth stations and the constraints on the e.i.r.p. of the radiolocation service,
- 2) the potential to disrupt the sharing of the band among the services, and cause mutual interference between the FSS and the radiolocation, radionavigation and space research services due to the potential change in the GSO FSS earth station minimum antenna requirements, and
- 3) the requirement for the radiolocation service to operate with a higher e.i.r.p.

BACKGROUND: Prior to WRC-2000, footnote S5.502 contained constraints such as, e.i.r.p. and antenna size limits on the fixed-satellite service and e.i.r.p. on the radiolocation service. Footnote S5.503 contained e.i.r.p. limits on the fixed-satellite service to protect the space research service. These constraints were intended to accommodate a delicate sharing of the band among these services. These constraints were developed based upon the planned use of 13.75-14.0 GHz by geostationary satellites in the FSS, and were intended to limit the number of FSS earth stations to the point that sharing could occur, though a potential for interference from the limited number of earth stations would still exist. Since the time that the regulatory constraints were developed, GSO FSS operators have expressed interest in operating small earth stations. Radiolocation operators have expressed interest in using higher than currently allowed e.i.r.p. WRC-2000 modified the provision in S5.502 allowing FSS earth stations to use a minimum e.i.r.p. less than 68 dBW, while ensuring such use will not impose constraints on RL and RN use of this band. The potential interference to or additional regulatory limitations upon systems in the radiolocation, radionavigation and space research services in the frequency band 13.75-14.0 GHz, can adversely affect their operations. Also, WRC-2000 extended the current 59 dBW limit in footnote S5.502 on e.i.r.p. of RL to all directions of space. Footnote S5.503 was also modified to limit the maximum e.i.r.p. of non-GSO earth stations to 51 dBW in the band 13.772-13.778 MHz. The conference resolved to study the continued need for a minimum GSO FSS earth station antenna diameter size and the constraint on the e.i.r.p. of the radiolocation service.

U.S. VIEW: No further relaxation of the limitations upon the FSS as contained in S5.502, or changes to those WRC-2000 added to S5.503, can be considered unless ITU-R study results supporting such changes are available. (March 1, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.27: to review, in accordance with Resolutions [GT PLEN-1/1] (WRC-2000) and [GT PLEN-1/3] (WRC-2000), the ITU-R studies requested in those resolutions, and modify, as appropriate, the relevant regulatory procedures and associated sharing criteria contained in Appendices S30 and S30A and in the associated provisions;

ISSUE: Studies are required to revise certain procedures and sharing criteria as a consequence of decisions taken at WRC-2000 with respect to the bands around 12 GHz (and the feeder links associated with them) for satellite and terrestrial services.

BACKGROUND: WRC-2000 made significant changes in the use of those bands allocated to the BSS from 11.7 to 12.5 GHz, largely due to the major re-planning modifications to the Regions 1 and 3 BSS Plans (S30) and the feeder links (roughly 17.3 to 17.8 GHz (S30A).

In particular, there is a consequential need to determine sharing criteria and sharing procedures between receiving earth stations in the BSS (consumer downlink dishes, for example) and transmitting earth stations and terrestrial stations in these bands for the other services using these frequencies (BSS, FSS and FS).

Additionally, interregional and inter-service pfd limits were agreed upon at WRC-00 for Regions 1 & 3 BSS into Region 2 FSS, Region 1 BSS into Region 3 FSS and Region 2 BSS into Regions 1 & 3 FSS downlinks under the proviso that these situations would be studied further. The results of these sharing studies on pfd limits would be reported to WRC-03.

Presumably, final quantitative values will be established at WRC-03, and placed in the appropriate parts of Appendices S30 and S30A. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.28: to permit the use of the band 108-117.975 MHz for the transmission of radionavigation satellite differential correction signals by ICAO standard ground-based systems;

ISSUE: Addition of a new allocation of the band 108 - 117.975 MHz to the aeronautical-mobile (Route) service to be used only by the International Civil Aviation Organization (ICAO) standard Ground-Based Augmentation System (GBAS), which will provide supplemental signals for the Global Navigation Satellite System (GNSS) on a co-primary basis with the aeronautical radionavigation service.

BACKGROUND: The augmentation to the GNSS signal is referred to as the Ground-Based Augmentation System (GBAS). The GBAS is intended to complement the ICAO standardized Space-Based Augmentation System (SBAS), and function together to provide seamless satellite-based navigation for all phases of flight landings. In practical terms, this means that GBAS and SBAS will be used to fulfill requirements for en-route navigation through precision landings. In addition, GBAS will provide the user with a navigation signal that can be used for all weather surface navigation capability enabling all weather surface surveillance/traffic management systems.

The GBAS will broadcast its correction message via very high frequency (VHF) line-of-sight radio data link from a ground-based transmitter. It is the VHF data link that requires the new allocation.

The GBAS will provide many benefits for all users. Curved precision approach paths, which are not supportable using the current instrument landing systems (ILS), will be possible with GBAS. Approaches will be designed to avoid obstacles, restricted airspace, noise sensitive areas, and congested airspace. Unlike current ILS, a single GBAS ground station will provide precision approach capability to all runway ends at an airfield, eliminating the need for multiple ILS installations at a single airport. GBAS may also provide surface navigation at the airport.

Implementation of the GBAS will primarily affect the following users of the National Airspace System:

- ***Air Traffic Controllers:*** Controllers will be dealing with a seamless navigation system for all phases of flight using GNSS, SBAS and GBAS. Controllers will also be able to provide improved surface navigation capability to their customers (air carriers, business, and general aviation).
- ***Pilots:*** The GBAS will potentially reduce cockpit workload by integrating the GNSS/SBAS/GBAS into primary means of radio navigation. GBAS will reduce pilot training requirements by reducing the number of required navigation systems onboard.
- ***Airway Facilities Personnel:*** The number of navigation and surveillance systems that must be maintained will be reduced with the implementation of the GBAS. The life cycle for the GBAS will be twenty years with replacement of hardware every five to seven years. This will

provide system maintainers with a state of the art system that will be more reliable and maintainable. Software will be upgraded as required over the GBAS life cycle.

U.S. VIEW: The U.S. supports the proposal to allocate the band 108-117.975 MHz to the aeronautical mobile (Route) service (limited to GNSS ground-based augmentation system) on a primary basis worldwide. (February 6, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.29: to consider the results of studies related to Resolutions 136 [COM5/3] (WRC-2000) and 78[COM5/23] (WRC-2000) dealing with sharing between non-GSO and GSO systems;

ISSUES: Resolution 136 (WRC-2000), Frequency sharing in the range 37.5-50.2 GHz between GSO FSS networks and non-GSO FSS systems, invites the ITU-R to undertake technical, operational and regulatory studies on sharing arrangements which achieve an appropriate balance between GSO FSS networks and non-GSO FSS systems in the frequency range 37.5-50.2 GHz.

BACKGROUND: Both GSO FSS and non-GSO FSS systems are planned for operation within the 37.5-42.5 GHz and 47.2-50.2 GHz bands. WRC-2000 took several steps toward harmonized use of the band 37.5-42.5 GHz by both fixed and fixed-satellite services (FSS). The band 37.5-42.5 GHz is now allocated to the FSS (space-to-Earth) on primary basis in all three ITU Regions. WRC-2000 adopted, in Article S21, power flux-density (pfd) limits on FSS space stations in the band 37.5-42.5 GHz in order to protect terrestrial services. The pfd limits vary between different band segments and between geostationary and non-geostationary systems within each band segment. Sharing studies between GSO FSS networks and non-GSO FSS systems in the frequency range 37.5-50.2 GHz are underway taking into account the significant propagation losses at these frequencies, duration of interference events, differences in planned earth station antenna sizes, availability requirements, and potential mitigation techniques such as polarization isolation.

U.S. VIEW:

Frequency Sharing in the Range 37.5-50.2 GHz

The U.S. continues to participate in the technical, operational and regulatory studies on sharing arrangements in order to achieve an appropriate balance between GSO FSS, non-GSO FSS, space research, and terrestrial systems in the frequency range 37.5-50.2 GHz.

The U.S. supports the PFD limits as adopted at WRC-2000 for the space research service use of the 37-38 GHz band. (February 6, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.29: to consider the results of studies related to Resolutions **138 [COM5/3] (WRC-2000)** and **78[COM5/23] (WRC-2000)** dealing with sharing between non-GSO and GSO systems;

ISSUES: Resolution **78 (WRC-2000)**, *Development of procedures in case the operational or additional operational limits in Article S22 are exceeded*, invites the ITU-R to undertake the appropriate regulatory studies to develop procedures in cases where the single-entry operational epfd_↓ limits in the bands 10.7-12.75 GHz, 17.8-18.6 GHz, and 19.7-20.2 GHz or the single-entry additional operational epfd_↓ limits for 3 and 10 meter antennas in the 10.7-12.75 GHz band are exceeded at an operational GSO earth station.

BACKGROUND: WRC-2000 adopted a combination of single-entry validation, single-entry operational and, for 3 and 10 meter antennas in the 10.7-12.75 GHz band, single-entry additional operational epfd_↓ limits contained in Article S22, along with the aggregate epfd_↓ limits in Resolution 76 (WRC-2000), which apply to non-GSO FSS systems to protect GSO networks in the bands 10.7-12.75 GHz, 17.8-18.6 GHz, and 19.7-20.2 GHz. The operational epfd_↓ limits were adopted to protect *operational* GSO FSS networks from interference levels that may result in loss of synchronization or severe degradation in performance.

Compliance with the operational epfd_↓ and additional operational epfd_↓ limits is not subject to verification by the ITU-BR but by individual administrations. In the case of operational epfd_↓ limits, verification would be made by measurement conducted by administrations and/or their GSO system operators. A commitment by the administration (and their non-GSO operator) that the system filed will meet the additional operational epfd_↓ limits is part of the Appendix S4 coordination data. A non-GSO system causing interference may have to reduce its epfd_↓ power levels towards the affected GSO earth station to meet the single-entry operational epfd_↓ limits unless otherwise agreed by the concerned administrations. The ITU-R has identified the need to correct, in the most expeditious manner; any cases where the operational epfd_↓ or additional operational epfd_↓ limits are exceeded.

U.S. VIEW: The U.S. supports the development of ITU-R recommendations such as the preliminary draft new recommendation concerning Methodologies for measuring epfd_↓ interference levels from a non-GSO space station to verify compliance with operational epfd_↓ limits and the draft new recommendation concerning Procedure for the identification of non-GSO satellites causing interference into an operating GSO earth station approved during the September 2000 WP 4A meeting. These recommendations provide the methodologies needed by administrations and/or their GSO system operators to assess operational epfd_↓ levels and were requested in resolves 1 of Resolution 137 (WRC-2000).

Since compliance with the operational epfd_↓ and additional operational epfd_↓ limits is not subject to verification by the ITU-BR but by individual administrations and because the administration responsible for the non-GSO must commit that the system filed will meet the additional operational

epfd↓ limit, the responsibility for defining and implementing the appropriate procedures should be a matter largely left to individual administrations.

It appears unnecessary for the ITU-R to develop additional procedures or remedies in the Radio Regulations for cases where non-GSO systems exceed the operational or additional operational epfd↓ limits. The intent of Resolution 78 (WRC-2000) is already met by the existing Article S15 provisions (Section V, Reports of Infringements, and Section VI, Procedure in a Case of Harmful Interference), which may be applied in order to expeditiously correct any cases where the operational epfd↓ or additional operational epfd↓ limits are exceeded. (February 7, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.31: to consider the additional allocations to the mobile-satellite service in the 1-3 GHz band, in accordance with **Resolutions 226 (WRC-2000)** and **227 (WRC-2000)**;

ISSUE: Allocations to MSS (space-to-Earth) in the 1 518-1 525 MHz band

BACKGROUND: WRC-2000 considered proposals for an allocation to the mobile-satellite service (MSS) (space-to-Earth) in Regions 1 and 3 in the frequency band 1 518-1 525 MHz. This band is adjacent to the 1 515-1 559 MHz band in use by GSO MSS operators. An earlier proposal, using the 1 559-1 567 MHz band considered in response to Resolution **220 (WRC-97)**, was dismissed by WRC-2000 and this band will not be considered further for MSS use.

The frequency band 1 492-1 525 MHz is allocated to the MSS (space-to-Earth) in Region 2 on a primary basis, except in the United States where, as an alternative allocation, the band 1 452-1 525 MHz is allocated to the fixed and mobile services on a primary basis under the provisions of No. **S5.344**. No. **S5.343** gives priority in Region 2 to the aeronautical mobile service for telemetry over other uses by the mobile services. There has been no MSS implemented in the 1 492-1 525 MHz band due to the incompatibility between aeronautical telemetry and MSS systems.

In Regions 1 and 3, 1 518-1 525 MHz is allocated to the fixed service on a primary basis, to the mobile service on a primary basis in Region 3, and to the mobile, except aeronautical mobile, service on a primary basis in Region 1. In a number of countries in Region 1, 1 429-1 535 MHz is allocated to the aeronautical mobile service on a primary basis exclusively for the purposes of aeronautical telemetry within their national territories under the provisions of No. **S5.342**.

WRC-2000 concluded in Resolution 226 that the proposed allocation to the MSS (space-to-Earth) at 1 518-1 525 MHz due to their potentially widespread emissions upon the Earth from either geostationary or non-geostationary systems, could have an impact on the terrestrial mobile service, including aeronautical mobile and aeronautical mobile telemetry, in all three Regions. Resolution 226 also states there is a need to review the pfd values in Appendix **S5** in order to ensure that they are adequate to protect new point-to-multipoint systems operating in the fixed service in the band, as well as, a need to study sharing between the MSS and aeronautical mobile telemetry in all the Regions in the band.

Recommendation ITU-R M.1459 gives the values needed for protection of the aeronautical mobile service for telemetry systems in the 1 452-1 525 MHz band from geostationary satellites operating in the MSS. The required separation distances between co-frequency telemetry and MSS operations are very large, making the feasibility use of the 1 518-1 525 MHz band by MSS anywhere in the world questionable.

U.S. VIEW: Use of the 1 518 to 1 525 MHz band for MSS is incompatible with aeronautical telemetry and other services in the band. Therefore, new allocations to MSS should not be made in this frequency band and consideration should be given to removing the MSS allocation in Region 2. (February 6, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.31: to consider the additional allocations to the mobile-satellite service in the 1-3 GHz band, in accordance with Resolutions 226 (WRC-2000) and 227 (WRC-2000);

ISSUE: Allocations to MSS (Earth-to-space) in the band 1 683-1 690 MHz

BACKGROUND: WRC-2000 considered proposals for worldwide allocation of the band 1 683-1 690 MHz to the MSS (Earth-to-space) in response to Resolution 213 (WRC-95). The frequency band 1 675-1 710 MHz is allocated to the MSS (Earth-to-space) in Region 2 on a co-primary basis. However, the 1 683-1 690 MHz is mainly used by the meteorological-satellite (MetSat) and meteorological aids (MetAids) services. While there are only a limited number of main MetSat earth stations operating in this band in all three Regions, there are a large number of MetSat earth stations operating in Regions 2 and 3, and the locations of many of these stations are unknown. Sharing between MetSat and MSS in the band 1 675-1 690 MHz is feasible only if appropriate separation distances are maintained.

Sharing between MetSat and MSS may not be feasible in those countries where a large number of MetSat stations are deployed. Recommendation ITU-R SA.1158-2 indicates that additional studies are required in order to determine the criteria for coordination between MSS and the MetSat service for GVAR/S-VISSR stations operated in the band 1 683-1 690 MHz in Regions 2 and 3.

Other spectrum identified in Resolution 213 included 1 690-1 710 MHz, however, it has been concluded in the ITU-R that co-channel sharing between MSS and MetAids is not feasible and that co-frequency sharing between MetAids and MetSat services is not feasible. WMO has identified future spectrum requirements for MetAids operations as limited to the 1 675-1 683 MHz portion of the 1 675-1 700 MHz band, but some administrations will continue to require spectrum in the range 1 683-1 690 MHz for MetAids operations.

The existing Region 2 allocation includes the provision that MSS operation should not constrain current and future development of the MetSat service, as specified in No. S5.377. No MSS services have been implemented under the Region 2 allocation in this band.

Resolution 227 invites the ITU-R to complete technical and operational studies on the feasibility of sharing between MSS and MetSat, by determining appropriate separation distances between mobile earth stations and MetSat stations, including GVAR/S-VISSR stations, in the band 1 683-1 690 MHz, (Recommendation ITU-R SA.1158-2); and to assess the current and future spectrum requirements of the MetAids service, taking into account improved characteristics, and of the MetSat service in the band 1 683-1 690 MHz, taking into account future developments.

U.S. VIEW: MSS is not compatible with existing services in the 1 683-1 690 MHz band and no additional MSS allocations should be made in this band. Consideration should be given to removing the Region 2 allocation for MSS in this band. (February 6, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.31: to consider the additional allocations to the mobile-satellite service in the 1-3 GHz band, in accordance with **Resolutions 226 (WRC-2000)** and **227 (WRC-2000)**;

ISSUE: Additional allocations to MSS (Earth-to-space) in the 1- 3 GHz band

BACKGROUND: Resolutions 226 and 227 (see other two issues under this agenda item) call for expanding the frequency bands to be examined in the event that the studies of the specific frequency band referred to in these resolutions (1 518-1 525 and 1 683-1 690 MHz) lead to an unsatisfactory conclusion. The ITU-R is to carry out sharing studies in order to recommend alternative MSS (Earth-to-space) frequency bands in the 1-3 GHz range, but excluding the band 1 559-1 610 MHz, for consideration at WRC-03. The Resolutions go on to state that the MSS allocations should be on a global basis, preferably in the vicinity of the existing allocations around 1.5/1.6 GHz.

The spectrum required for additional MSS allocations is not well defined. Previous ITU-R conference preparatory documentation refers to an unmet need for additional MSS spectrum. However, in light of recent developments where many MSS services have not had market success, it is questionable whether additional MSS is a high priority given other demands for spectrum.

While the scope of this issue is very broad and could affect many different spectrum interests, so far only one alternative band has been identified, 1 670-1 675 MHz for Earth-to-space direction. This band is included in the preliminary WRC-2003 documentation from the responsible ITU-R study group, WP8D. This is also the subject of a current U.S. reallocation proposal in FCC Docket ET-00-221 (FCC NPRM FCC 00-395 at paragraph 38). This band was identified for aeronautical public correspondence by WARC-92. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.32a: to consider technical and regulatory provisions concerning the band 37.5-43.5 GHz, in accordance with Resolutions **128 (Rev.WRC-2000)** and **84 [COM5/28] (WRC-2000)**;

ISSUE: Protection of Radio Astronomy in the 42.5 - 43.5 GHz Band

BACKGROUND: The 42.5 – 43.5 GHz band is allocated to the radio astronomy service on a primary basis, while the adjoining frequency bands on the lower side are allocated to the fixed-satellite (space-to-Earth) and broadcasting-satellite services. To protect the radio astronomy allocation, WRC-2000 established a new footnote **S5.551G** providing provisional aggregate power flux-density limits for space-to-Earth links in the 41.5 – 42.5 GHz band. These provisional limits are being reviewed in accordance with Resolution **128**. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.32b: to consider technical and regulatory provisions concerning the band 37.5-43.5 GHz, in accordance with Resolutions **128 (Rev.WRC-2000)** and **84 [COM5/28] (WRC-2000)**;

ISSUE: PFD Limits in the 37.5–43.5 GHz Band

BACKGROUND: Various segments of the 37.5–43.5 GHz frequency band are allocated to the fixed-satellite, broadcasting-satellite, and mobile-satellite services on a primary basis. Segments of the band are also being used for high-density fixed service systems, generally very short links between antennas at different levels on buildings. Such links can have large elevation angles; contrary to the usual assumption for fixed service links, upon which sharing between the fixed and fixed-satellite services is based. The high-density fixed service links require power flux-density limits on fixed-satellite service downlinks that are much more stringent than usual.

WRC–2000 developed power flux-density limits in accordance with Nos. **S21.16.10** and **S21.16.12** as well as other provisional PFD limits. Resolution **84** invites review of the PFD limits as well as other studies of compatibility between the fixed and space services. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2000 Agenda Item 1.33: to review and revise technical, operational and regulatory provisions, including provisional limits in relation to the operation of high altitude platform stations within IMT-2000 in the bands referred to in No. S5.388A, in response to Resolution 221 (WRC-2000);

Resolution 221 (WRC-2000), “Use of high altitude platform stations providing IMT-2000 in the bands 1885-1980 MHz, 2010-2025 MHz and 2110-2170 MHz in Region 1 and 3 and 1885-1980 MHz and 2110-2160 MHz in Region 2”

ISSUE: Resolution 221 asks for additional technical, operational and regulatory studies to be conducted in order to review and, if necessary, revise the provisional pfd limits. Resolution 221 also asks for consideration of appropriate regulatory and technical provisions to allow bilateral coordination of HAPS in IMT-2000 systems with affected neighboring administrations.

BACKGROUND: Provisions for operation of HAPS were originally made at WRC-97, for HAPS providing FS operations in the 47.2-47.5 GHz and 47.9-48.2 GHz bands (S5.552A). A definition of HAPS was also added to S1.66A. The use of HAPS as base stations to provide terrestrial IMT-2000 was considered at WRC-2000, resulting in provisions to facilitate this being added to the Radio Regulations S5.388A. Resolution 221 from WRC-2000 includes provisional co-channel and out-of-band power flux-density limits for HAPS operation, for the protection of other station either sharing the same band or operating in adjacent bands.

Additional ITU-R study is needed to consider compatibility of HAPS within IMT-2000 with some other services that share portions of these bands on a co-primary basis. (February 6, 2001)

U.S VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.34: to review the results of studies in response to Resolution 539/[COM4/6] (WRC-2000) concerning threshold values for non-GSO BSS (sound) in the band 2 630-2 655 MHz, and to take actions as required;

ISSUE: Sharing criteria needed to accommodate highly elliptical orbit BSS(sound) systems in a band with co-allocations with the fixed and mobile services.

BACKGROUND: WARC-92 allocated frequencies for the BSS(sound) in the band 2 535 to 2 655 MHz. Some administrations in Regions 1 and 3 accepted the allocation.

Since WARC-92, until recently, the technical/sharing concentration in the Study Groups of the ITU-R for BSS(sound) systems have dealt with systems that would use geo-stationary orbits. Recently, as certain technical data from studies and experiments were developed, interest has increased in the use of highly elliptical non-geo-stationary orbits for a few satellites in the system. Each satellite can spend most of its orbital period at high elevation angles for locations in medium to high latitudes. This mitigates against some of the foliage and building blockage that a geo-stationary satellite faces when serving higher latitude coverage areas. When properly synchronized a few highly elliptical orbit satellites will provide continuous coverage service.

Japan is developing such a satellite system for use within the upper 25 MHz of the band from 2 535 to 2 655 MHz allocated at WARC-92.

Sharing criteria are needed for this type of orbital system at these frequencies. The results of the relevant studies are to be presented to WRC-03. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.35: to consider the report of the Director of the Radiocommunication Bureau on the results of the analysis in accordance with Resolution **53 (Rev. WRC-2000)** and take appropriate action;

ISSUE: The BR is responsible for analysis that will update the “remarks” column of tables in Article 9A of Appendix S30A and Article 11 of Appendix **S30**.

BACKGROUND: Article 11 of Appendix **S30** contains the specifics of the Regions 1 & 3 Plans in a table containing 17 columns. A similar table with 19 columns deals with the feeder links (Appendix S30A). These two tables are the essence of the Plans.

The last column in each table is called “remarks”. There is a numerical code for the “remarks” column – 8 possibilities for a downlink and 9 for a feeder link. A “remark” example is “This assignment shall not claim protection from ...” Most assignments do not have an entry in the “remarks” column in the old Plan (see WRC-97).

WRC-2000 made a total overhaul of the Regions 1 and 3 Plans by in general doubling the number of assignments in each Plan per administration. The BR was responsible for conducting an enormous amount of work during the Conference to meet a deadline not long before the end of the Conference so that the Plans could be accepted by the Conference in Plenary at the end.

The “remarks” column needs to be completed by the BR, first as a draft to be circulated to administrations. After this review process, the BR is instructed to present the agreed upon “remark” inclusions in the tables for review and possible action at WRC-03. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.36: to examine the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz taking into account the seasonal planning procedures adopted by WRC-97;

ISSUE: All things considered, do HF international broadcasters need additional frequency allocations in the lower part of the HF spectrum in order to serve their listeners with clear signals during all portions of the 11 year sunspot cycle?

BACKGROUND: 790 kHz of additional frequency bands were allocated at WARC-92 to the HF broadcasting service. Of this amount, only 200 kHz were allocated in frequencies below 10 MHz. Frequencies below 10 MHz are the most desirable ones, for propagation reasons, for many circuit applications, particularly during the several years of low sunspot activity. This is encountered during the seasonal planning coordination meetings that precede every six-month HF broadcasting schedule development. And it is manifest in actual broadcasting where interference is a severe problem at these lower frequencies and there also results lower service levels for those broadcasts that have to accept poorer propagation conditions at the higher frequencies because of limited capacity below 10 MHz.

Therefore, after WARC-92 broadcasters proposed an agenda item to deal with this problem. Agenda item 1.36 for WRC-03 has followed from that initial step many years ago.

Any additional allocation for HF broadcasting will impact on the fixed service, either by removing the allocation over a period of time or permitting some level of sharing between the services. This assumes that the studies on capacity vs. demand, etc. that will be completed for inclusion in the CPM-02 report show a clear inadequacy of the existing HF broadcasting service allocations in the HF bands below 10 MHz.

Parenthetically, agenda item 1.23, on alignment of the amateur/amateur-satellite and broadcasting services around 7 MHz, might be considered to be a “subset” of this agenda item. (February 22, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.37: to consider the regulatory and technical provisions for satellite networks using highly elliptical orbits;

ISSUES: Categorization of highly elliptical orbits and definition of technical and operational parameters of systems using these orbits. Sharing between non-geostationary orbit (non-GSO) systems using highly elliptical orbits (HEOs) and lower altitude non-GSOs such as low earth orbit (LEO) and medium earth orbit (MEO) systems, including mitigation techniques and coordination criteria. Sharing between non-GSO systems using HEOs and GSO networks in bands where coordination is required.

BACKGROUND: Resolution 721 (WRC-97) recommended to the Council that resources be provided to include an agenda item for WRC-2000 concerning quasi-geostationary satellite networks. The Council decided not to provide the additional resources and the agenda item was not addressed at WRC-2000. Resolution 800 (WRC-2000) proposed agenda item 8.2 for WRC-03, which was accepted by the Council-2000 meeting as agenda item 1.37 concerning satellite networks using HEOs.

Many documents have been considered in the ITU-R WP 4-9S, WP 4A, and JTG 4-9-11 on this topic over the past several years. At the September 2000 meeting of Working Party 4A, it was agreed that satellite networks using HEOs referred to in WRC-03 Agenda item 1.37 are non-GSO systems. The literal meaning of *highly elliptical* is a high value of eccentricity; however, WP 4A identified three categories of orbits that, in its view, are within the scope of this agenda item: high inclination circular geosynchronous orbits, high inclination elliptical geosynchronous orbits, and high inclination elliptical orbits with periods that are fractions of the geosynchronous period. Services other than the fixed-satellite service may also use HEO orbits.

Sharing among non-GSO FSS systems in the bands 10.7-12.75 GHz, 17.8-18.6 GHz and 19.7-20.2 GHz was studied under WRC-2000 agenda item 1.13. The results are documented in section 3.1.1 of the Conference Preparatory Meeting (CPM) Report on and regulatory/procedural matters to be considered by the 2000 World Radiocommunication Conference (WRC). Sharing between inhomogeneous non-GSO constellations was shown to be feasible if one or both of the systems employs mitigation techniques. No conclusions were reached regarding the particular case of inhomogeneous sharing between non-GSO systems in high altitude (HEOs) and lower altitude non-GSOs such as LEOs and MEOs and studies are continuing. The equivalent power-flux density (epfd) limits in Article S22 adopted by WRC-2000 apply to non-GSO FSS systems in these bands to protect GSO FSS and BSS networks.

Resolution 137 (WRC-2000) addresses studies relating to the sharing criteria to be applied during coordination between non-GSO fixed-satellite service (FSS) systems. Systems with HEOs are one type of non-GSO being considered in response to Resolution 137. Sharing between non-GSO FSS systems in HEO and other non-GSO FSS systems in the frequency bands 17.8-20.2 GHz is being studied in WP 4A with the aim of identifying interference mitigation techniques to facilitate coordination and sharing criteria that might be applied during coordination between non-GSO FSS systems.

U.S. VIEW:

1. The U.S. favors the identification of mitigation techniques and sharing criteria which may facilitate coordination between non-GSO FSS systems, including HEOs.
 2. The U.S. agrees that satellite networks using HEOs are non-GSOs. These networks should continue to be considered on the same, equal regulatory basis as other types of non-GSOs such as MEOs and LEOs.
 3. Studies on sharing between non-GSO systems using HEOs and GSO networks in bands should continue, recognizing that power limits have been adopted in certain bands (e.g., the epfd limits specified in the bands 10.7-12.75 GHz, 17.8-18.6 GHz, and 19.7-20.2 GHz covered by Article S22). Studies should focus on sharing between non-GSO systems, including HEOs, and GSO networks in bands where coordination is required.
 4. Understanding of the results of studies being conducted for WRC-03 agenda item 1.37 will be improved by the use of common definitions in ITU-R Recommendations. There is no need to modify the terms and definitions in Article S1 of the Radio Regulations. (February 6, 2001)
-

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.38: to consider provision of up to 6 MHz of frequency spectrum to the Earth exploration-satellite service (active) in the frequency band 420-470 MHz, in accordance with Resolution 727 (Rev.WRC-2000);

ISSUE: Use of the frequency band 420-470 MHz by the earth exploration-satellite (active) service (Resolution 727 (Rev.WRC-2000))

BACKGROUND: A similar agenda item was debated at WRC-97 resulting in a decision not to adopt proposed allocations for the Earth exploration-satellite service in the 420-470 MHz band. The Earth sensing community has identified that the need for such an allocation, at a radio spectrum wavelength of approximately one meter, is important because experiments have shown good correlation of backscatter radiation with biomass and soil moisture, which are parameters needed for forest monitoring. The need for such forest monitoring was emphasized at the United Nations Conference on Economic Development (UNCED) (Buenos Aires - 1992). Subsequent to UNCED 1992, studies have identified a minimum bandwidth requirement of 6 MHz to satisfy mission objectives.

Studies to date have shown the potential for interference between EESS (active) sensors and ground-based radars when in the line of sight of the ground-based radars. Preliminary studies have also shown that there is a potential for interference from EESS (active) to airborne radars operating worldwide.

The amateur community is concerned over possible interference to amateur operations in the 430-440 MHz band.

U.S. VIEW: The U.S. continues to oppose this allocation based on the grounds that the EESS (active) sensors would interfere with terrestrial radar systems. (February 6, 2001)

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.39: to examine the spectrum requirements in the fixed-satellite service bands below 17 GHz for telemetry, tracking and telecommand of fixed-satellite service networks operating with service links in the frequency bands above 17 GHz;

Issue: The use of fixed-satellite service (FSS) bands below 17 GHz for telemetry, tracking and telecommand (TT&C) of FSS networks operating with service links in the frequency bands above 17 GHz as a means of reducing free-space transmission loss and/or atmospheric loss and/or increasing the aggregate bandwidth available for service.

Background: Propagation conditions and spectrum availability are of primary consideration when implementing TT&C subsystems, which must meet high reliability criteria. Some systems utilize the existing Space Operation Service allocations (all of which are below 3 GHz) for TT&C while others use part of the FSS allocation occupied by the service link to perform this function (FSS (space-to-Earth) for space telemetry and tracking carriers, FSS (Earth-to-space) for telecommand). Many advance publication and coordination notices for GSO and non-GSO systems in the FSS bands above 17 GHz have been received by the BR.

WRC-2000 established an agenda item 1.39 for WRC-03 to examine the spectrum requirements in the FSS bands below 17 GHz for TT&C operation of FSS networks operating with service links in the frequency bands above 17 GHz. Transmissions above 17 GHz experience higher free-space and rain attenuation losses than those below 17 GHz. In addition, the aggregate bandwidth needed to accommodate the TT&C carriers of FSS networks with service links above 17 GHz is likely to be substantial. The use of FSS allocations below 17 GHz may provide another mechanism to satisfy the TT&C requirements of FSS networks operating with service links in the frequency bands above 17 GHz. Studies are being performed in Working Party (WP) 4A and WP 4B in response to agenda item 1.39 and ITU-R Question 257/4 to determine performance reliability criteria, differences between TT&C subsystems for networks using service links above 17 GHz and networks using service links below 17 GHz, additional coordination burden, and the spectrum requirements.

U.S. View:

1. The U.S. is participating in the technical studies on spectrum requirements below 17 GHz for TT&C of FSS networks operating with service links above 17 GHz, taking into account the factors above.
 2. Any identification of FSS bands below 17 GHz for TT&C operation of FSS networks operating with service links in the frequency bands above 17 GHz should be based on technical studies showing sharing is feasible with current users of the FSS bands below 17 GHz. (February 22, 2001)
-

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 2: to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with **Resolution 28 (Rev. WRC-2000)**, and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with principles contained in the Annex to **Resolution 27 (Rev. WRC 2000)**;

ISSUE: Incorporation by Reference

BACKGROUND: A number of provisions of the Radio Regulations make reference to the ITU-R Recommendations. As the ITU-R Recommendations are updated, it is necessary to review the Radio Regulations to see if these references should be revised. **Resolution 27** clarifies the procedures for incorporation by reference in the Radio Regulations so that WRC 2003 will be the last general opportunity to review all existing references. **Resolution 27** and **Resolution 28** must be reviewed together and limits the WRC to reviewing only those Resolutions and Recommendations that are linked to national proposals. (February 6, 2001)

U.S. VIEW:

Radio Conference Subcommittee (RCS)
Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 4: in accordance with Resolution 95 (Rev. WRC-2000), to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation;

ISSUE: General review of the Resolutions and Recommendations of WARC's and WRC's

BACKGROUND: The Director of the Radiocommunication Bureau conducts a review of the Resolutions and Recommendations indicating their current status and if any follow up action is needed. (February 6, 2001)

U.S. VIEW:
